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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/800,507      | 03/08/2001  | Fumio Arakawa        | XA-9454             | 5102             |

181 7590 08/31/2004

MILES & STOCKBRIDGE PC  
1751 PINNACLE DRIVE  
SUITE 500  
MCLEAN, VA 22102-3833

EXAMINER

MAI, TAN V

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                |  |
|------------------------------|-----------------|----------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s)   |  |
|                              | 09/800,507      | ARAKAWA ET AL. |  |
|                              | Examiner        | Art Unit       |  |
|                              | Tan V Mai       | 2124           |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/8/01</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

Art Unit: 2124

1. Applicant's election without traverse of Group II (claims 5-12) in Paper filed on 5/24/04 is acknowledged.

2. The abstract of the disclosure is objected to because the Abstract contains the undefined acronym "SIMD". All such acronyms should be defined at the instance of their first use within the Abstract. Correction is required. See MPEP § 608.01(b).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makineni et al.

As per independent claim 1, Makineni et al disclose, e.g., see Fig. 1, the invention substantially as claimed. The data processor "may provide component operands to multiple scalar execution units or to a **combination of scalar and vector execution units to implement SIMD operations**" (col. 2, lines 26-28). Also, see col. 1, lines 11 to col. 2, line 10; col. 3, lines 7 to col. 4, line 4. It is noted that Makineni et al do not specifically detail the claimed "**inner product of vectors**" feature; however, Makineni et al do show "matrix multiplication" feature that is capable of performing the equivalent function. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Makineni et

al's teaching because the reference is a data processor capable of combinning of scalar and vector execution units to implement SIMD operations as claimed.

As per dependent claim 6, the claim adds the "length-4 vector". The feature is obvious design choice.

Due to the similarity of claims 8-11 to claim 5-6, they are rejected under a similar rationale.

5. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makineni et al as applied to claims 6 & 11 above, and further in view of either Steigerwalt, Jr. or Kojima et al.

As per dependent claims 7 and 12, the claim add the "9 input adder". The feature is old and well known in the adder art. For example, Steigerwalt, Jr. or Kojima et al. disclose "**multiple input adders**". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine either Steigerwalt, Jr. or Kojima et al in Makineni et al, thereby making the claimed invention, because the reference is a data processor capable of combinning of scalar and vector execution units to implement SIMD operations having multiple input **adders** as claimed.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references are art of interest.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (703) 305-9761. The examiner can normally be reached on Tue-Fri from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are:

|                    |                 |
|--------------------|-----------------|
| After-final        | (703) 746-7238  |
| Official           | (703) 746-7239  |
| Non-Official/Draft | (703) 746-7240. |

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



TAN V. MAI  
PRIMARY EXAMINER